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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,938	03/13/2007	Alexander Biebel	2133.134USU	2163

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EXAMINER

HOLLWEG, THOMAS A

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,938	Applicant(s) BIEBEL ET AL.	
	Examiner Thomas A. Hollweg	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/13/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

1. The Preliminary Amendment of June 7, 2006, is acknowledged. Claims 1-22 are canceled. Claims 23-44 are added. Claims 23-44 are currently pending.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on March 13, 2007, is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 23-28, 34, 37, 39, 40, 43 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Xu et al., U.S. Patent No. 6,326,224 B1.**

5. **With regard to claim 23**, in figure 2, Xu discloses a display device (30) comprising: a luminous element (31); a laterally structured luminous surface (38) having at least one region that is capable of illumination; and a transparent substrate (45) having a light-reflecting layer (41, 46) on each side of the transparent substrate (45) at a first distance from one another, the transparent substrate (45) being arranged so that one of the light-reflecting layers (41) is opposite the laterally structured luminous surface (38), wherein light emitted by the laterally structured luminous surface (38) is reflected

along a beam path back and forth between the light-reflecting layers (41, 46), and wherein at least one of the light-reflecting layers (41, 46) is semitransparent and at least one of the light-reflecting layers (46) is arranged at a second distance from the luminous element (31) (col. 3, line 41 - col. 4, line 20).

6. **With regard to claim 24**, in figure 2, Xu discloses that at least one of the light-reflecting layers (41, 46) comprises an interference reflection layer (col. 3, lines 15-24).

7. **With regard to claim 25**, in figure 2, Xu discloses that the interference reflection layer (41, 46) comprises alternating layers with a high refractive index and a low refractive index, the alternating layers with the high refractive index comprising a first material selected from the group consisting of niobium oxide, tantalum oxide, and titanium oxide, and the alternating layers with the low refractive index comprising a second material selected from the group consisting of aluminum oxide, hafnium oxide, silicon oxide, and magnesium fluoride (col. 3, lines 15-24).

8. **With regard to claim 26**, in figure 2, Xu discloses that at least one of the light-reflecting layers (41, 46) comprises a metallic reflection layer (col. 3, line 22).

9. **With regard to claim 27**, the Examiner notes that the claim limitation “a dip coating, a spin coating, a sputtered coating, a PVD coating, a CVD coating, a PECVD coating, and a PICVD coating” is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the

subject product-by-process claim limitation has been considered, but not patentably distinct over Xu (see MPEP 2113).

10. **With regard to claim 28**, in figure 2, Xu discloses that the luminous element comprises an OLED (col. 3, lines 48-50).

11. **With regard to claim 34**, in figure 2, Xu discloses that the light-reflecting layers (41, 46) are arranged parallel to one another (col. 3, line 56 – col. 4, line 3).

12. **With regard to claim 37**, in figure 2, Xu discloses a partially absorbing material (45) arranged in the beam path between the light-reflection layers (41, 46) (col. 4, lines 3-5) (no real material will be 100% transparent).

13. **With regard to claim 39**, in figure 2, Xu discloses that the at least one light-reflecting layers (41, 46) has a transmittance that varies spectrally in a wavelength region of the light emitted by the luminous element (31) (transmittance of interference reflection layers inherently varies with wavelength).

14. **With regard to claim 40**, in figure 2, Xu discloses that the at least one light-reflecting layers (41, 46) has a transmittance that varies spectrally as a function of an angle of incidence of the light emitted by the luminous element (31) (transmittance of interference reflection layers inherently varies with angle).

15. **With regard to claim 43**, in figure 2, Xu discloses a third light-reflecting layer (35) spaced apart from the light-reflecting layers (col. 3, lines 60-61).

16. **With regard to claim 44**, in figure 2, Xu discloses that the display device is configured for use as an information display selected from the group consisting of a motor vehicle, a telecommunications device, a mobile telephone, a domestic appliance,

toy, an advertising, a warning or information board, an emblem, and a logo (col. 1, lines 27-31).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu as applied to claim 28 above, and further in view of Hanawa et al., U.S. Patent Application Publication No. 2004/0021414 A1.

19. **With regard to claim 29**, Xu discloses all of the limitations, but does not expressly disclose that the OLED comprises an electrode layer that forms one of the light-reflecting layers.

20. Hanawa, in figure 1, teaches an OLED (10) where an electrode layer (16) forms one of the light-reflecting layers [0028], so that the OLED device with reflecting layers is simpler to manufacture.

21. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device where the OLED comprises an electrode layer that forms one of the light-reflecting layers, as taught by Hanawa, so that the device is simpler to manufacture.

22. **With regard to claim 30**, in figure 1, Hanawa teaches that the electrode layer (16) comprises transparent conductive oxide (16B) and a semitransparent thin metal layer (16A) [0028].

23. **With regard to claim 31**, in figure 2, Xu discloses that the OLED comprises two electrode layers (35, 38) (col. 3, lines 49-55). However Xu does not expressly disclose a laterally structured insulation layer that covers at least a region of one of the two electrode layers and is arranged between the two electrode layers.

24. Hanawa, in figure 1, discloses an OLED with two electrodes (16, 12) with a laterally structured insulation layer 12 that covers at least a region of one of the two electrode layers and is arranged between the two electrode layers [0021] to separate the pixels of the display.

25. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device having a laterally structured insulation layer that covers at least a region of one of the two electrode layers and is arranged between the two electrode layers, as taught by Hanawa, to separate the pixels of the display.

26. **With regard to claim 32**, in figure 2, Xu discloses that at least one of the two electrode layers (35, 38) is laterally structured (col. 3, lines 49-55).

27. Claims 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu as applied to claims 23 and 37 above, and further in view of Eida et al., U.S. Patent No. 6,344,712 B1.

28. **With regard to claim 33**, Xu discloses all of the limitations, except it does not expressly disclose a laterally structured mask.

29. Eida, in figure 1, teaches an OLED display having a laterally structured mask (21), to improve the contrast of the display (col. 5, lines 2-4).

30. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device having a laterally structured mask, as taught by Eida, to improve the contrast of the display.

31. **With regard to claim 38**, Xu discloses all of the limitations, except it does not expressly disclose that the partially absorbing material comprises a colored material.

32. Eida, in figure 1, teaches an OLED display having a colored material (22) in the path of the emitted light to purify the color of the emitted light (col. 3, lines 9-14; col. 11, lines 21-23).

33. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device where the partially absorbing material comprises a colored material, to further purify the color of the emitted light.

34. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu as applied to claims 23 and 37 above, and further in view of Jacobsen et al., U.S. Patent Application Publication No. 2001/0005114 A1.

35. **With regard to claim 35**, Xu discloses all of the limitations, except it does not expressly disclose that the light-reflecting layers are arranged obliquely with respect to one another.

36. Jacobsen, in figures 4 and 5, teaches an microcavity resonator, like the one employed in the Xu device, with different designs where the design of the microcavity resonator may be adjusted to optimize display performance [0074-0076].

37. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu microcavity where the light-reflecting layers are arranged obliquely with respect to one another, to optimize the performance of the display.

38. **With regard to claim 36**, Xu discloses all of the limitations, except it does not expressly disclose that at least one of the light-reflecting layers is curved.

39. Jacobsen, in figure 5, teaches a microcavity resonator, like the one employed in the Xu device, where at least one of the light-reflecting layers is curved, to optimize display performance [0074-0076].

40. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu microcavity where at least one of the light-reflecting layers is curved, to optimize the performance of the display.

41. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu as applied to claim 23, above, in view of itself.

42. **With regard to claim 41**, Xu discloses all of the limitations, but is silent as to whether all of the components are permanently fixed or may be displaceably arranged.

43. One having ordinary skill in the art would understand that any of the components, including the light-reflecting layers may be arranged so that they may be adjusted for fine tuning of the device.

44. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device where at least one of the light-

reflecting layers is displaceably arranged relative to the other light-reflecting layer, so that the device may be finely tuned.

45. **With regard to claim 42**, Xu discloses all of the limitations, but is silent as to whether all of the components are permanently fixed or may be displaceably arranged.

46. One having ordinary skill in the art would understand that any of the components, including the light-reflecting layers may be arranged so that they may be adjusted for fine tuning of the device.

47. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Xu device where one of the light-reflecting layers is applied to the transparent substrate, and wherein the transparent substrate can be displaced or positioned with respect to the other of the light-reflecting layers, so that the device may be finely tuned.

Conclusion

48. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

49. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

50. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/NIMESHKUMAR D. PATEL/

Supervisory Patent Examiner, Art Unit 2879